December 09, 2013

Lawrence J. Lynch, P.G., Hydrogeologist
Water Use Section
Bureau of Drinking Water and Groundwater
Wisconsin Department of Natural Resources

Re: Gogebic Taconite, LLC November 25, 2013 correspondence on Bulk Sampling

Dear Mr. Lynch:

As a sovereign nation with regulatory authority over downstream waters, on-Reservation air quality, and pursuant to treaties we signed with the United States, we submit our comments related to Gogebic Taconite’s (henceforth, "GTAC" or "applicant") submission of a proposal to bulk sample in the Bad River Watershed. These comments are based upon the review of materials submitted by the applicant on November 25th of this year. They focus principally on informational needs for State permit identification and do not comment in detail on current applications (i.e. Bulk Sampling storm water application). We also encourage you to review our previous comments, as numerous items raised remain relevant.

Please note that these comments have been submitted on behalf of the Environmental Program of the Bad River Band of Lake Superior Chippewa and do not represent a form of government-to-government consultation. For each item, we will offer background information (or "context") and subsequent comments. Contact information is provided at the conclusion should items exist for which you require further explanation or discussion.

**Context (1):** Our comments submitted on October 22, 2013 detail the geologic nature of the Ironwood iron formation and the reasonable risk of contamination associated with the exposure of certain minerals known to occur in that formation and adjacent rocks. We specifically encouraged the Wisconsin Department of Natural Resources (henceforth, “Department”) to “require the applicant to submit detailed characterization of the local stratigraphy, as well as the lithology and mineralogy, of the members targeted and adjacent to proposed bulk sampling activities.” To date, the applicant has not provided this information. We observe that stratigraphic positioning is particularly critical given the variability of sulfur concentrations between strata (Bjornrud et al. 2013).
The northern extent of the Pence (i.e. upper slate) and its contact with the Tyler Formation should be described relative to the sampling proposed at Site #5. Cannon et al. (2007) provide a review of the nature of that contact. The contact between the Ironwood and Tyler formations has been characterized as either a conglomeritic unit (Hotchkiss 1919) or a gradational transition to a shale unit (Schmidt 1980). Critically, Cannon et al. observe that the local units of black sideritic shale underlying the Pabst conglomerate mark a transition from the oxygenated depositional environment of the Ironwood to anoxic conditions in the presence of hydrogen sulfide.

Given the longitudinal orientation of bulk sample sites #1 and #2, the Yale member (i.e. lower slate; if conformably present) could be expected to occur somewhere between the southern extent of Site #2 and the northern extent of Site #1. As previously described, the Yale is 14-22m thick with a 3m thick basal unit of pyritic shale. It is more generally describe as a unit of laminated chert-carbonate iron formation overlying the basal pyritic layer (Cannon et al. 2007). Note that if the referenced iron carbonate occurs as siderite, its acid-neutralizing capacity may be marginal, as described in Bjornerud et al. 2013.

**Comment (1.1):** The Department should require the applicant to submit a detailed characterization of the local stratigraphy of the members targeted and adjacent to proposed bulk sampling activities. This information should be available through the U.S. Steel core logs from past exploration. The mineralogical information provided by the literature (discussed above) could be used to delineate contacts of importance (i.e. the Ironwood-Tyler contact and the Plymouth-Yale-Norrie sequence).

**Context (2):** As stated in our October 22nd comments, “previous studies conducted in the area report iron sulfide mineralization (Huber 1959, Marsden 1978, Schmidt 1980, Cannon et al. 2007, Bjornerud et al. 2013), as well as trace contaminants including selenium, arsenic, copper, zinc, and mercury (Bjornerud et al. 2013).” However, the limited information on geologic characterization provided by the applicant to date continues to result in a significant level of uncertainty and risk with respect to the potential release of contaminants from the rock, and the potential for contamination of the local environment during bulk sampling. As the applicant has failed to submit detailed mineralogical information (e.g. hand specimens, fracture surfaces, thin section, XRF), it would be illogical to a priori eliminate any surface water or soil monitoring constituents from monitoring.

Moreover, the applicant proposes to use visual inspection methods of ore piles and the excavated area to identify the potential for sulfide mineralization. The applicant also states that the sulfur present in the rock is generally too low to produce acid (Bulk sampling materials pg. 31). This contrasts with the findings of Kim Lapakko (1988) who demonstrated that drainage from 0.92% sulfur solids generated acid, but only after a lag time over 20 weeks. While net acid production should not be presumed (or dismissed) prior to kinetic testing, the level of sulfur described by Lapakko is in the range of reasonable values for some layers of the iron formation and the overlying Tyler.
We are also concerned that visual surveys may be an ineffective and short-term approach to a long-term potential issue.

**Comment (2.1):** We recommend that the Department require detailed mineralogical information on the rock types in the proposed bulk sample sites to inform monitoring requirements. Absent this, we strongly encourage the Department to mandate surface water quality and soil monitoring for the full suite of parameters proposed by the applicant (via Barr Engineering) during our pre-application meeting on December 3rd, 2013.

**Comment (2.2):** Monitoring should take place in any potential receiving waters for a sufficient duration to establish baseline and continue until soils have been stabilized. Soils should be sampled downslope of the proposed activity, both before and after sampling.

**Comment (2.3):** This does not characterize the full range of recommendations relative to monitoring and surface water review. Additional comments should be expected regarding the stormwater permit application submitted on December 2, 2013.

**Context (3):** In your letter to the applicant on August 13th, you also indicated that the proposed bulk sampling activity will not require wetland or waterway permits. While the materials submitted by the applicant are an improvement in some respects (i.e. some level of description is provided for the wetland delineation project boundary), the footprint of access road #6 remains poorly defined.

**Comment (3.1):** We recommend the Department require the applicant to specifically identify the proposed road width (including variations in that width), sump locations, and whether cut-and-fill methods are anticipated. This information is essential for making the determination that wetlands are not expected to be filled and waterways will not be altered.

**Context (4):** While the applicant has submitted a coarse-scale endangered resources report, such a cursory screening is insufficient for determining the potential risk to certain species.

**Comment (4.1):** If activities are proposed anytime during the growing season, survey information should be provided for any occurrences of Braun’s hollyfern (*Polystichum braunii*; state threatened), Canada Yew (*Taxus Canadensis*, state special concern), New England sedge (*Carex nova-angliae*, state special concern), or claspleaf twistedstalk (*Streptopus amplexifolius*, state special concern) with the potential to be impacted by direct (e.g. bulk sampling) and indirect (e.g. timber clearing, storm water discharges) disturbances.

**Comment (4.2):** The use of Moore Park Road past the proposed staging area should be limited due to the documented presence of wood turtles (*Glyptemys insculpta*; state threatened) during the spring or fall.
**Comment (4.3):** The surveys and site preparation activities proposed to be protective of the American Marten (Waabizheshi; *Martes americana*; state endangered) should be strictly adhered to during the course of activities. The clearing of timber, removal of vegetation, and extraction of rock may all disrupt habitat important to this species. More specifically, such activities should not be permitted in suitable habitat between March-June in order to avoid the potential take of dependent kits unable to disperse from the area.

**Context (5):** During the field inspection conducted on October 9, 2013 by Departmental and Bad River staff, a large proportion of the eastern section of the property was marked for timber harvest. It is unclear if the area marked for harvest is included in the reference “any marketable material will be recovered for commercial use such as a lumber mill raw product, pulp mill raw product, or biofuel. Any remaining woody material will be disposed of in compliance with existing rules and regulations such as mulching.” This simultaneous use complicates both the acreage of disturbance and the intended use of any constructed road.

**Comment (5.1):** The Department should conduct a review of the landowner’s forest management plan to ensure that such large-scale disturbance is conducted in an appropriate manner, as specified in that plan.

**Context (6):** We previously submitted comments regarding the reliability of the AP-42 estimates used to generate emissions predictions from blasting. We also described the potential risk to water quality posed by the incomplete detonation of ammonium nitrate. However, on December 4, 2013 we became aware of a local ordinance regulating noise disturbance in at least one township in the vicinity of the proposed activities.

**Comment (6.1):** We recommend that the Department require the preblasting survey identified under 295.48(L) in order to determine how, where, and when blasting is to be conducted, if at all. Any blasting should be conditioned as previously described and conform with local ordinances on noise pollution (e.g. Town of Morse, Ashland County, WI).

We thank you for your time and consideration. My contact information is provided below should any item(s) exist for which you require further explanation or discussion.

Respectfully,

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Citations:


